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THE RELATION BETWEEN THE ABILITY TO PAY AND THE STANDARD OF LIVING AMONG FARMERS

A Socio-Economic Study of 861 White Farm Families of Kentucky, Tennessee, and Texas

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Leaders who are looking for solutions of the problems of agriculture are seldom agreed on the exact relation between the economic status and the standard of living of farm families. Many contend that, as rapidly as farmers have larger returns from farming, they will of their own accord raise their standards of living; and the problem becomes that of increasing the farm income. Others hold that the desire for higher standards of living results finally in larger incomes, by means of which the economic goods constituting the standard of living may be procured. To these, the principal problem is the farmer's appreciation of the satisfactions accruing from higher standards of living.

Regardless of the view taken in this matter, there is much need for more information than is available at present on the relation existing between the standard of living and the ability of farmers to provide or to pay. Does ability to pay mean a higher standard

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of living for the farm family? Is family living curtailed in order that the farmer may advance economically? To what extent does size of the family affect the family living? Are cycles of family life—that is, periods of growth and development of the sons and daughters in the family—directly related to the standard of living provided? Does schooling of the parents bear as close a relationship to the standard of living for all members of the family as does the ability to pay? To what extent is the ability to pay related to schooling? Is the evidence sufficient to conclude that the standard of living is due primarily to ability to pay, or is it due to the continual growth of new and more wholesome desires developed through experience and information?

Ordinarily the term "standard of living" conveys different ideas to different people. To many it means the sum total of economic goods meeting only the material needs of the family; that is, food, housing, and clothing. To others it may mean emphasis on economic goods satisfying the needs of a spiritual nature; such as education, social or personal improvement at the expense of adequate food or housing. The term as here used includes the goods satisfying the more material needs—food, housing, and clothing—as well as the economic goods contributing to the maintenance of health, education, recreation, and social relationships of the family.

In this study the standard of living is reckoned in terms of money; that is, the values and the distribution of goods consumed annually, which values, it is believed, furnish the best available measure of the standard of living. In many cases market or estimated values do not represent the true market value of goods used, but they provide a common measure of all kinds of goods and offer a means of comparing goods filling one need with those filling another need.

Cost of living and standard of living have been used interchangeably in many studies of family living made in the past. With some studies considerable emphasis has been given to quantities and quality of foods, clothing, and housing consumed. As yet no definite quantitative measures have been accepted. Measurements of quality of the goods used are more vague than are measurements of quantity.

Cost of living, or "dollars worth" of goods consumed, is accepted as a measure in this study with the realization of its many deficiencies. The dollars spent per year for food may be a poor indication of how well the family is nourished, because price does not correspond to nutritive value. Money spent for clothing may not always indicate how well the various members of the family are clad. The money value of the house may give little or no suggestion of the comforts and satisfactions which it provides as a home. These and other deficiencies suggest the desirability of more detailed studies of the adequacy of the diet, clothing, housing, and operation costs of the farm families.

The method here used of summarizing and analyzing the family living follows as closely as possible that used in studies of the standard of living among other groups of workers. Comparisons made with families of town dwellers or of industrial workers are for the purpose of checking the method of study rather than for the purpose of comparing the welfare of the two groups of people. Urban findings can not be applied to farm conditions and vice versa. The

whole scheme of farm life differs from that of the city. Much of the farmer's living is supplied from the farm without direct purchase. On the other hand, the farmer's money income may be, and usually is, less regular.

The first studies of the standard of living were made among families of industrial workers of Europe. Many of these families had such low incomes that little more than food, shelter, and clothing could be had. Comparisons of these with families of higher incomes studied later have led to the generalization that, as income increases the proportion spent for goods of a less material nature than food, housing, and clothing increases. This generalization will be tested in comparison with urban families in so far as conditions are considered similar. Whereas the income from farming is in no way synonymous with urban income, total expenditures will be used in its stead for certain comparisons.

SCOPE OF STUDY

Data here presented were obtained from schedules taken by the United States Department of Agriculture in selected localities of Kentucky, Tennessee, and Texas for a study of farm ownership and tenancy. Schedules from Kentucky and Tennessee were obtained in cooperation with the State college of agriculture in each State.

Results given are based on estimates obtained by a field agent from some member of the farm family, usually the farm operator, of the receipts and the expenditures in connection with the operation of both the farm business and the farm home for the year ended December 31, 1919.[1]

Localities chosen in Kentucky lay in Shelby, Mercer, Jessamine, Montgomery, Bourbon, Scott, Woodford, and Fayette Counties. Localities in Tennessee were confined to three counties—Madison, Montgomery, and Williamson. Localities in Texas comprised 10 counties in the "Black Prairie"—Dallas, Ellis, Hill, Johnson, McLennan, Bell, Falls, Limestone, Navarro, and Williamson. Only a few schedules were obtained in Johnson, Limestone, and Navarro Counties.

Of the 1,100 schedules obtained from all localities in the three States, only 861 were regarded as being sufficiently typical for use in this study. Approximately 150 schedules representing families of colored farmers are not included. About 75 schedules representing farms operated by single individuals or homes comprising persons of one sex were discarded from this study. A few others incomplete in some respect could not be used.[2]

The types of farming represented by the several localities studied vary widely in some respects and are similar in other respects. All the localities from which data were obtained in Kentucky are typical of the famous bluegrass area, and tobacco is the principal money crop with the farmers. Land values per acre in the counties studied

[1] Schedules taken in Montgomery County, Tenn., about one-third of all those obtained from Tennessee, were for the year ended Jan. 1, 1921.

[2] Data on the farm business were tabulated by the division of land economics, and those pertaining to the family living were classified and summarized by the division of farm population and rural life, Bureau of Agricultural Economics. A general summary and analysis of the Texas schedules appear in U. S. Dept. Agr. Bul. 1068, "Farm Ownership and Tenancy in the Black Prairie of Texas." A summary of the data on living conditions and the cost of living is given in a preliminary report of the Bureau of Agricultural Economics, U. S. Department of Agriculture, March, 1924, "Cost of Living in Farm Homes of Several Areas of Kentucky, Tennessee, and Texas."

in this region practically quadrupled between 1900 and 1919. During the same period the average size of farms decreased in the different counties from 6 to 30 per cent.

Localities studied in Tennessee are representative of three farming regions, including Williamson, Madison, and Montgomery Counties. Williamson County is in the southern part of the limestone bluegrass region of Kentucky and Tennessee. Farming in this region is well diversified, with both crop and livestock enterprises represented. Land values more than trebled in Williamson County from 1900 to 1919. The percentage of all farms operated by tenants, about 36 per cent, remained practically stationary throughout the two decades 1900 to 1919.

Madison County is typical of the silt loam uplands of western Tennessee. In this section land is generally rolling, well-drained, and fairly well adapted to cotton growing. Cotton occupied about 37 per cent of all crop land in Madison County in 1919. Land rose from $7.50 to $41.50 per acre during the two decades 1900 to 1919, a more rapid proportionate rise than was experienced by any other of the counties represented by the localities studied. Madison County with 60 per cent of its farms operated by tenants in 1919, ranked second only to the Black Land belt of Texas in this respect.

Montgomery County is situated in the western part of the Highland Rim region of the State, adjoining Kentucky on the north. Land in this region is moderately rough. Land values here are lower than in any other region studied. In 1919, 23 per cent of all crop land in Montgomery county was devoted to tobacco growing. At that time almost half the farms in the county were operated by tenants. In this county, land values have almost trebled since 1900.

The Texas localities are all within the famous Black Land belt, a farming area of very fertile, dark, calcareous soil. Practically all of this belt is prairie. At the close of the Civil War stock raising was predominant. Farming now centers around cotton as the main money crop, and it occupied about 6 out of each 10 acres of crop land in 1919. Practically no livestock, other than work stock and animals for home consumption, are kept on the average farm at present.

The farming area represented by the Texas localities is characterized by rapidly rising land values and a rapid growth of tenancy since 1880, except for the decade 1910 to 1919. About two-thirds of the farms in this section were operated by tenants in 1919. The greatest increase in land values occurred during the decade ending in 1919.

COMPOSITION OF FAMILIES AND HOUSEHOLDS

The term "family" is used arbitrarily to mean a group of persons who are all supported from a common income. The family includes parents and the sons and daughters who are at home or who while away at school or college are supported from the family purse. "Household" means all the persons sheltered in one dwelling and fed usually at a common table. The only exception would include a few helpers boarded not at the common table but provided for from the family purse. Thus the household may include in addition to the family, relatives, hired help, boarders, and others.

Relatives and others are taken into account in all costs when supported from a common income. When not supported from a common income, they are excluded under all except food and rental costs. Hired help and boarders are included under food and rental costs only.

Owing to the extremely variable composition of the farm family or household, neither is regarded as a satisfactory basis for determining the relation of the ability to pay to the standard of living. For this purpose sets of cost-consumption units, described on pages 14 and 15 have been developed.

The family, however, is used as a unit for comparing the values, and the distribution of values, of goods used by families or households of different tenure groups and different localities and industries. Its use in this connection admits of comparisons which are not possible in terms of the sum of expenditures per cost-consumption units.

Though smaller than size of household, size of family is regarded as the more satisfactory basis for comparing the values of goods used. Variations in the average size of household follow closely variations in the average size of family for the several tenure groups and localities of this study as well as of other studies. From a social and from an economic point of view, size of family seems to be equally preferable as a basis for these comparisons.

The average size of family and household and the average age of husbands, wives, sons (at home) and daughters (at home) are shown in Table 1. Families average 4.6 persons. Households are slightly larger—4.7 persons.

TABLE 1.—*Average sizes of family and household and average ages of husbands, wives, sons (at home) and daughters (at home) for the year ended December 31, 1919, in 861 farm homes of selected localities of Kentucky, Tennessee, and Texas*

Tenure	Number of homes	Average size of—		Average age of—			
		Family	Household	Husbands	Wives	Sons at home	Daughters at home
		Number	*Number*	*Years*	*Years*	*Years*	*Years*
All	861	4.6	4.7	44.3	39.8	11.4	11.2
Owners	411	4.4	4.6	48.3	43.1	12.8	12.5
Tenants	321	4.8	4.9	40.7	37.4	11.0	10.6
Croppers	129	4.9	5.0	40.3	35.8	8.7	9.3

For all three States, families of owners are smaller than families of tenants or croppers. Both husbands and wives of the owner families are older than husbands and wives of tenant or cropper families. Similarly, sons and daughters of owners are oldest, and those of croppers are youngest.

CLASSIFICATION OF EXPENDITURES

In the tabulation of data, costs for the various goods are classified according to the logical relation of these goods to the standard of living. The object of the classification used is twofold: (1) To enable the reader to make direct comparisons of the costs of goods for specific purposes, and (2) to afford a more satisfactory index

to the standard of living than is afforded by total expenditures. Food, clothing, rent, furnishings, operating expense, maintenance of health, advancement, personal, insurance (life or health), and unclassified constitute the main groups of goods used. Foods include meat, dairy products, honey, flour, meal, vegetables, and fruit furnished by the farm valued in so far as possible at prices half way between what would have been received had they been sold, and what would have been paid had they been bought. They include groceries and other food products purchased at average local prices.

Clothing includes all articles of wearing apparel actually purchased for all members of the farm family during the year studied. The value of clothing was obtained as estimates of the total costs of clothing for the different persons composing the family.

Use of the farmhouse for the year is charged at 10 per cent of the value of the house, which value was determined by the field agent. This rental charge is intended to cover taxes, insurance, and repairs on the house and to pay 6 per cent on the investment.

Furniture and furnishings include furniture proper, musical instruments, pictures, floor covering, bedding, linens, tableware, utensils, and equipment for sewing, cleaning, laundry, and canning purchased during the year. Depreciation on furnishings in the home is not taken into account as an expenditure.

Operation goods include fuel furnished by the farm, fuel, soap, cleansers, and matches purchased, hired help in the household, laundry sent out, and telephone charges. They include depreciation and operation of the automobile, where these are chargeable to household and family use. Depreciation on the automobile is charged at 15 per cent of the average value of the car for the year 1919. Gas, oil, tires, repairs, license fees, and insurance make up the other automobile costs. Proportion of the total cost of the car going for household use was estimated when the data were obtained.

The goods for the maintenance of health include doctor's, nurse's, and dentist's services, hospital charges, and medicines of all kinds purchased during the year.

Advancement goods include board and lodging at high school or college, school and college textbooks, supplies and tuition, reading matter in the home, organization and club dues, sports, vacation trips, church support, and benevolences.

Costs for items of a personal nature cover barber's fees, toilet articles, gifts, candy, and tobacco.

Insurance includes money paid out as premiums on life, endowment, health, or accident policies during the year. In this study it includes also any money reported as placed in savings funds during the year of study.

Unclassified costs include money paid out for burials, for cemetery lots, and for any purposes not specified.

SIGNIFICANCE OF ADVANCEMENT GOODS AS AN INDEX TO STANDARD OF LIVING

The distribution of expenditures for the various purposes is accepted as a fairly satisfactory method of deciding how well families actually live. The most worth-while values in life grow out of the use of economic goods that fill cultural wants, such as educational

and recreational, provided of course, that the needs for food, clothing, shelter, and other material goods have been met. The results of a general study of the cost and standard of living among approximately 12,000 working men's families of 92 localities throughout the United States, in about 1918,[3] show that as the family income, and consequently the total expenditure for family living, increases, a larger proportion goes for purposes other than food, rent, fuel, and light. On the other hand, as the income rises, the proportion of the total expenditure going for the so-called necessities falls noticeably. Results of a similar study of the cost of living among 11,000 workingmen's families of the principal industrial centers of 33 States about 1902,[4] show the same trend, except that the proportion for rent remains almost constant as the income rises. In an earlier study made by Engel among workingmen's families of Belgium and reviewed by Chapin, the proportion spent for clothing did not increase,[5] but remained about the same, as did the proportion going for rent, fuel and light, regardless of size of the expenditure for all purposes.

Results of the present study show about the same general trend as do the results of the studies of workingmen's families, especially of the study made in 1902. The percentage of the total expenditures for food decreases markedly, and the percentages for rent and for fuel and light remain almost constant with the rise in total expenditures. Thus, as the total expenditure increases, a larger proportion of the expenditure, as well as more actual money, is available for goods filling the nonmaterial uses. This being true, some further measure or index of expenditure for the nonmaterial goods seems desirable. This index is sought in the proportion or the percentage that the value of advancement goods is of the total value of all goods used during a year's time.

Advancement goods are accepted as being the least material in nature and as covering a wider distribution of uses than any other one group of goods. They include educational and recreational facilities, reading matter, provision for travel, participation in clubs and organizations, benevolences, religions, and all other interests of a social or a spiritual nature. In the present study and in similar studies made among farmers of several localities of the United States,[6] the proportion of the total expenditures for advancement increases more noticeably than do the proportions for the other groups of economic goods filling the more material uses, with increased total expenditures. Since there is a tendency for the percentage of the total expenditure for advancement to rise as the total expenditure for all purposes increases, the percentage or proportion going for this purpose is considered as significant as total expenditures of the prevailing standard of living. The percentage of all expenditures for advancement, being less affected than the total cost of goods by varying prices, is worthy of further consideration as a means of comparing standards of living among families of different periods, different localities and different occupations.

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[3] Cost of Living in the United States, Monthly Labor Review, Bureau of Labor Statistics, U. S. Dept. Labor, August, 1919, p. 119.

[4] Cost of Living and Retail Prices of Food, 18th Annual Report of the Commissioner of Labor, 1903.

[5] Chapin, Robert C. The Standard of Living Among Workingmen's Families in New York City, 1909.

[6] Cost of Living and Living Conditions Among Farm Families of Selected Localities, Preliminary Reports, Bureau of Agricultural Economics, U. S. Department of Agriculture, 1924–25.

TABLE 2.—*Average expenditures per family for the different groups of items for the year ended December 31, 1919, as shown by value of materials furnished by the farm and materials purchased; 861 farm families of selected localities of Kentucky, Tennessee, and Texas*

Item	All families (861)			Owner families (411)		
	Furnished	Purchased	Total	Furnished	Purchased	Total
Food, including groceries	$383.80	$248.00	$631.80	$427.60	$224.30	$651.90
Clothing		254.70	254.70		283.90	283.90
Rent (10 per cent value house)	137.90	2.00	139.90	184.90	.40	185.30
Furniture and furnishings		28.50	28.50		33.40	33.40
Operating expense	14.90	158.00	172.90	18.60	192.30	210.90
Maintenance of health		67.00	67.00		75.00	75.00
Advancement		84.30	84.30		130.10	130.10
Personal	.20	16.70	16.90	.20	16.90	17.10
Insurance—life and health		36.90	36.90		44.70	44.70
Unclassified		3.10	3.10		2.70	2.70
Total	536.80	899.20	1,436.00	631.30	1,003.70	1,635.00

Item	Tenant families (321)			Cropper families (129)		
	Furnished	Purchased	Total	Furnished	Purchased	Total
Food, including groceries	$387.00	$272.20	$659.20	$235.80	$263.80	$499.60
Clothing		246.80	246.80		181.10	181.10
Rent (10 per cent value house)	105.40	4.40	109.80	69.30	.80	70.10
Furniture and furnishings		26.60	26.60		17.70	17.70
Operating expense	11.20	147.90	159.10	13.00	73.20	86.20
Maintenance of health		66.50	66.50		42.70	42.70
Advancement		51.10	51.10		21.20	21.20
Personal	.10	18.20	18.30	.30	12.50	12.80
Insurance—life and health		36.90	36.90		12.20	12.20
Unclassified		3.50	3.50		3.30	3.30
Total	503.70	874.10	1,377.80	318.40	628.50	946.90

EXPENDITURES AND GOODS USED

TOTAL EXPENDITURES FOR ALL PURPOSES

The averages of all expenditures for all families by tenure groups is given in Table 2. Of the total value of goods used, $1,436, 37.4 per cent, or $536.80, were furnished by the farm and 62.6 per cent or $899.20 were provided by direct purchase.

DISTRIBUTION OF THE AVERAGE EXPENDITURES AMONG THE VARIOUS GROUPS OF ARTICLES USED

The proportion that the average expenditure for each of the several groups of articles is of the total expenditures appears in Table 3. These proportions are determined from the average expenditures for the different groups of articles as given in Table 2.

Expenditures for food cover 44 per cent of all expenditures for all purposes. Expenditures for clothing, constituting 17.7 per cent of all expenditures, are about two-fifths as large as expenditures for food. Operating costs, comprising 12 per cent of all expenditures, are less than one-third of the expenditures for food. About one-third of the operating costs, $53.80, is for fuel, over one-fourth of which, $14.90 worth, is furnished by the farm. Rental charge for use of the house is about one-fifth of the expenditures for food. Houses represented by this rental charge average 5.3

rooms in size, bathroom, pantry, and closets excluded. Data on the number and percentage of the houses fitted with modern improvements of the various kinds are not available. Expenditures for furniture and furnishings purchased during the year of study are only 2 per cent of all expenditures. These expenditures are about 6 per cent of the inventory value of furniture and furnishings in the home for the year 1919. Expenditures for the maintenance of health are 4.7 per cent of the total. Money spent for education, recreation, benevolences, etc.—termed "advancement"—amounts to almost 6 per cent of all expenditures. Expenditures for goods of a personal nature are only 1.2 per cent and for life and health insurance, 2.6 per cent of the total expenditures. Only 0.2 per cent of all expenditures is for goods not readily classified.

TABLE 3.—*Distribution of average expenditures for classified items including value of goods furnished by the farm and purchased for the year ended December 31, 1919, by 861 farm families of selected localities of Kentucky, Tennessee, and Texas*

Item	All families	Owner families	Tenant families	Cropper families
Number of families	861	411	321	129
	Per cent	*Per cent*	*Per cent*	*Per cent*
Food, including groceries	44.0	39.9	47.8	52.8
Clothing	17.7	17.4	17.9	19.1
Rent (10 per cent value of house)	9.7	11.3	8.0	7.4
Furnishings	2.0	2.0	1.9	1.9
Operating costs	12.0	12.9	11.6	9.1
Maintenance of health	4.7	4.6	4.8	4.5
Advancement	5.9	8.0	3.7	2.2
Personal	1.2	1.0	1.3	1.4
Insurance—life and health	2.6	2.7	2.7	1.3
Unclassified	.2	.2	.3	.3

COMPARISONS OF EXPENDITURE AMONG OWNERS, TENANTS, AND CROPPERS

The average of all expenditures for owners, tenants, and croppers amounts to $1,635, $1,377.80, and $946.90, respectively. Thus tenant families 0.4 of a person, or approximately 9 per cent larger, consumed about 15 per cent less goods (in terms of cost) than did owner families. Cropper families 0.5 of a person, or about 12 per cent larger than owner families, used about 40 per cent less goods than did owner families. With owner families 38.6 per cent of all goods used were furnished by the farm in comparison with 36.6 per cent for tenant families and 33.6 per cent with cropper families.

Owner families, smaller in size, probably equally well or better fed than tenant or cropper families, lived in better houses and spent more money for other purposes. The percentage of all expenditures for clothing, however, is lowest for owner families. The proportion of all expenditures for advancement is much higher for owners than for either tenants or croppers.

COMPARISONS WITH FAMILIES OF OTHER LOCALITIES AND OF OTHER INDUSTRIES

No attempt is made to compare the averages of actual expenditures for the various groups of articles with similar averages for families of other groups. Different price levels for articles entering into the family living render the making of such comparisons

too intricate for this publication. Comparisons of the proportions of expenditures for the different groups of articles are of interest and may be made readily. Comparisons of this sort, from the most complete data available, are made in Table 4.

TABLE 4.—*Distribution of the average expenditures per family among the different groups of articles for one year as shown in this study in comparison with other studies for which data are available*

Items of expenditure	861 farm families of selected localities of Kentucky, Tennessee, and Texas, 1919	402 farm families of Livingston County, N. Y., for year ended Aug. 31, 1921 [1]	12,096 white families in 92 industrial centers of the United States, 1918 [2]
Average expenditure	$1,436.00	$2,012.00	$1,434.40
	Per cent	*Per cent* [3]	*Per cent*
Food, including groceries	44.0	39.5	38.2
Clothing	17.7	13.7	16.6
Rent	9.7	11.6	13.4
Fuel	3.7	7.4	[4] 5.3
All others	24.9	27.8	26.4
Operating, less fuel	8.3	8.4	----
Furnishings	2.0	2.1	----
Maintenance of health	4.7	4.1	----
Advancement	5.9	6.2	----
Personal	1.2	2.4	----
Insurance and savings	2.6	4.0	----
Unclassified	.2	.6	----

[1] Family Living in Farm Homes, U. S. Dept. Agr., Bul. 1214.
[2] Cost of Living in the United States, U. S. Dept. Labor, Bureau of Labor Statistics, Monthly Labor Review, vol. 9, No. 2.
[3] Percentages in this column differ from those given on p. 10, U. S. Dept. Agr. Bul. 1214, owing to reclassification of goods used in order to get more definite comparisons.
[4] Not including 295 families in which rent was combined with fuel and light.

Families of this study devoted larger percentages of all expenditures to food and clothing than did farm families of Livingston County, N. Y., and certain industrial families with which they are compared in Table 4. Their expenditures for use of the house, for fuel and for all other purposes, constitute lower percentages of the totals than for either the Livingston County farm families or the industrial families. Comparisons of the other groups of goods used by families of this study and the Livingston County study may be made from Table 4 as desired.

DISTRIBUTION OF AVERAGE EXPENDITURES IN RELATION TO AMOUNT OF TOTAL EXPENDITURES

The distribution of the average expenditures among the different groups of articles used in relation to the amount of total expenditures per family is shown in Table 5.

The proportion of all expenditures for food decreases from 61 per cent to 30.3 per cent as the average total expenditures rise by $300 groups from below $300 to $3,000 and over. The proportions for clothing, for operating expenses, and for the maintenance of health increase somewhat irregularly with increased expenditures for all purposes. The proportion for rent, for furniture and furnishings, and for insurance remain about the same or show only a slight, very irregular increase. The proportion spent for personal uses shows a slight, irregular decrease. The proportion for advancement increases markedly, although somewhat irregularly, with the rise in total expenditure.

TABLE 5.—*Relation of distribution of average expenditures among the different groups of articles and proportion of total family living furnished by the farm to the amount of total expenditures for year ended December 31, 1919; 861 farm families of selected localities of Kentucky, Tennessee, and Texas*

	Total expenditure groups—families spending—					
	Below $300	$300 to $599	$600 to $899	$900 to $1,199	$1,200 to $1,499	$1,500 to $1,799
Number of families	7	69	128	191	138	104
Average size of household (persons)	2.9	3.5	4.2	4.2	4.9	5.1
Average size of family (persons)	2.9	3.4	4.2	4.1	4.7	5.0
Average ages:						
Husband (years)	50.0	45.4	40.9	42.8	43.1	44.2
Wives (years)	44.8	39.8	36.5	38.0	39.0	40.4
Sons (years)	12.8	8.7	9.3	10.7	9.9	12.0
Daughters (years)	21.3	8.7	9.4	9.9	10.1	11.4
Average of total expenditures, dollars	268.9	489.1	760.9	1,048.9	1,346.9	1,643.6
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
Proportion of total for food	61.0	57.0	53.2	50.0	46.5	45.1
Clothing	12.2	16.0	17.2	17.0	17.9	17.3
Rent	9.0	8.7	9.8	10.4	8.9	9.2
Furniture and furnishings	1.1	.6	1.4	1.6	1.5	1.8
Operating expense	10.0	9.0	9.0	10.2	12.2	12.4
Maintenance of health	2.9	3.3	3.7	3.5	4.3	4.3
Advancement	1.7	2.7	2.9	4.2	4.7	4.7
Personal	2.1	1.7	1.3	1.3	1.3	1.0
Insurance—life and health		1.0	1.5	1.7	2.5	3.8
Unclassified				.1	.2	.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Proportion of living furnished	58.3	50.1	43.7	42.7	39.1	36.9
Proportion of living purchased	41.7	49.9	56.3	57.3	60.9	63.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
Size of house (average number of rooms)	2.7	3.8	4.4	4.9	5.3	5.7
Inventory value of furniture, dollars	109.2	196.5	270.7	367.7	455.6	534.8

	Total expenditure groups—families spending—					
	$1,800 to $2,099	$2,100 to $2,399	$2,400 to $2,699	$2,700 to $2,999	$3,000 and over	All families
Number of families	87	55	34	10	38	861
Average size of household (persons)	5.4	6.3	6.3	5.9	5.2	4.7
Average size of family (persons)	5.3	6.1	6.0	5.9	5.2	4.6
Average ages:						
Husband (years)	47.7	47.2	49.9	48.6	46.5	44.3
Wives (years)	43.7	42.2	45.0	47.8	43.1	39.9
Sons (years)	13.8	12.6	14.7	12.9	12.8	11.4
Daughters (years)	12.3	12.4	13.6	20.1	13.5	11.2
Average of total expenditures, dollars	1,927.3	2,230.9	2,529.9	2,863.6	3,715.9	1,436.0
	Per cent	*Per cent*	*Per cent*	*Per cent*	*Per cent*	*Per cent*
Proportion of total for food	43.3	41.6	36.6	35.3	30.3	44.0
Clothing	19.5	18.8	18.6	15.8	16.7	17.7
Rent	9.4	10.4	8.5	11.0	11.2	9.7
Furniture and furnishings	2.0	2.1	3.4	1.6	3.4	2.0
Operating expense	13.9	12.1	13.3	13.7	13.5	12.0
Maintenance of health	3.2	5.3	7.4	3.7	8.0	4.7
Advancement	4.9	5.2	7.6	12.6	13.3	5.9
Personal	1.3	1.2	1.0	1.1	.8	1.2
Insurance—life and health	2.4	3.1	3.2	5.2	2.2	2.6
Unclassified	.1	.2	.4		.6	.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Proportion of living furnished	35.5	35.1	30.9	34.1	29.2	37.4
Proportion of living purchased	64.5	64.9	69.1	65.9	70.8	62.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Size of house (average number of rooms)	6.0	6.5	7.2	7.0	7.8	5.3
Inventory value of furniture, dollars	584.9	695.1	762.9	850.0	1,071.2	469.7

Houses occupied increase in size from 2.7 rooms per family to 7.8 rooms per family with the rise in average total expenditures. This represents an increase in rooms from 0.9 rooms per person to 1.5 rooms per person, when the average number of rooms per house is divided by the average size of family or of household (Table 5). The average of the inventory values of furniture and furnishings in the home for the year of the study is closely related to the average amount of total expenditures.

The percentage of all family living provided by direct purchase (Table 5) shows a marked and a fairly regular increase from 41.7 per cent to 70.8 per cent. Roughly, only two-fifths of the family living is provided by direct purchase with families using less than $300 worth of goods as compared with about seven-tenths purchased with families using $3,000 or more than $3,000 worth of goods per year.

To some degree at least, some of the relationships evident in Table 5 may be attributable to increase in size of family or household, and to varying ages of different persons composing the households. Although no correlation between the average total expenditures and the average ages of individuals or between the distribution of the average expenditures and ages of individuals is shown, such correlation might become evident if the effect of the size of family or household were eliminated. At any rate, it seems probable that "living cycles"—that is, periods when there are no children, when children are growing and developing, and when children are self-supporting—may bear a definite relation to expenditures for all purposes or to the distribution of expenditures for various purposes.

COST-CONSUMPTION UNIT AND HOUSEHOLD-SIZE INDEX

The farm family, owing to extremely variable composition, is not regarded as a satisfactory basis for determining the relation of the ability to pay to the standard of living, as stated previously. The family fails to take account of the fact that the number, sex, and age of individuals composing the family or household make a difference in needs for food, rent, clothing, and other articles. Again, the term "family" makes no allowance for certain initial costs or fixed costs which must be borne by all families or households, regardless of the number and ages of the individuals which compose them. These initial costs are not the same for the different groups of economic goods. Further, the supplementary costs required to meet the demands of the third or fourth or other additional member of the family vary with the kind of goods used. Especially is this true with clothing and food, if the third or fourth or other additional member of the family be a son or daughter in the late teens. On an average, the supplementary or added costs for clothing for the son or daughter of this age are one and one-half times those for either parent, while the added costs for food are apparently about 80 per cent as much. In the same way costs meeting the demands made by the third or other additional member of the family on the other goods, as rent, maintenance of health, and education facilities, vary with little or no regard to the sum total of all the goods which this member of the family uses.

The task of finding a common unit of comparison has been avoided in some cost-of-living studies by selecting the "standard" family,

that is, a family consisting of husband, wife, and three children, the sex and age of the children varying somewhat with different investigators. Such selection, however, could not be made from schedules available for this study. Further, the results obtained from this selection, could it be made, would not be representative of the localities studied.

The per-capita unit, the adult equivalent, the adult-male equivalent and the ammain [7] represents efforts to reduce families of varying composition to a common unit of comparison. The per-capita unit is the simplest but fails to take account of the variations in individual demands due to sex and age. The adult equivalent unit, which usually counts two children as equal in their requirements to one adult, also ignores sex and accurate age requirements; this discrepancy has sometimes been partially removed by dividing the children among several age groups and increasing the allowance for each group in accordance with the age; but even so, sex is disregarded and the results are unsatisfactory.

The "ammain" scale,[7] developed by W. I. King and Edgar Sydenstricker for the United States Public Health Service,[8] bases the total expenditures for goods used by the separate individuals composing any family against the total cost of goods used by the male 19 to 35 years of age at the maximum of consumption as follows:

Age group	Male	Age group	Female
Under 2 years	0.2	Under 2 years	0.2
2 to 4 years	.3	2 to 4 years	.3
5 to 9 years	.4	5 to 9 years	.4
10 to 12 years	.5	10 to 12 years	.5
13 years	.6	13 to 14 years	.6
14 to 15 years	.7	15 to 18 years	.7
16 years	.8	19 to 36 years	.8
17 to 18 years	.9	37 to 64 years	.7
19 to 35 years	1.0	65 years and over	.6
36 to 55 years	.9		
56 to 75 years	.8		
75 years and over	.7		

The ammain scale would be wholly acceptable as a means of determining the relation of the ability to pay to the standard of living, provided the same relative demands were made by the third, fourth, or other additional member of the family on any one group of goods used. In addition to variations in consumption due to age and sex, variations in the costs of food, clothing, housing, etc., due to size of family are taken into account in a set of scales devised by the United States Department of Agriculture.[9] This set of scales, known as the household-size index, weights the consumption demands of different individuals on each of the separate groups of goods as classified in this study. The requirements of the adult male have been taken as the unit for a given group of goods, such as food or hous-

[7] Ammain is derived from the term "adult male maintenance."

[8] A Method of Classifying Families According to Incomes in Studies of Disease Prevalence. W. I. King and E. Sydenstricker, U. S. Treas. Dept., Pub. Health Serv. Pub. Health Repts., Vol. 35, No. 48, pp. 2829–2846. 1920.

[9] Family Living in Farm Homes, U. S. Dept. Agr. Bul. 1214, 1924.

ing, and scales have been set up by means of which the needs of individuals of different sex and age can be measured in terms of this unit. This unit is termed a "cost-consumption unit." The number of units which represent the needs of a household in respect to food, clothing, or other goods is called the "household-size index" for that item; and the total expenditure for that item, divided by its household-size index, gives the cost per consumption unit, for the respective item. The sum of the costs per cost-consumption unit for all groups of goods gives the figure by means of which different households may be compared.

The cost-consumption unit and household-size index revised in some respects through analysis of the larger number of records available are used in this study. The expenditure for goods consumed by the adult male for any group of goods is taken as unity or 1. Expenditures for goods consumed by other members of the family are weighted relatively against this 1 in terms of additional cost of the additional goods used. For all groups of goods other than food and personal, the adult female, the home maker, has been considered as consuming the same amounts of goods (in terms of costs) as the adult male, the operator. The average cost of clothing is about the same for each. Probably both share use of the house, furniture and furnishings, operating goods, and health and advancement facilities about equally.

The age groupings for sons and daughters for this study are considered from the physiological and the sociological standpoints. Points of division between years are of course arbitrary and might be placed between other years, but the preschool age, 5 years or less, the grade-school age, 6 to 11 years, the grammar-school age, 12 to 14 years, the high-school age, 15 to 18 years, and the college and "choice of occupation" age, 19 years or over, are deemed preferable. The scales of units adopted for use in this study are given below:

Cost-Consumption Units for Reducing Expenditures for the Different Groups of Goods Used to Terms of an Adult Male

FOOD

	First individual in age and sex group	Each additional individual in age and sex group
MALE		
19 and over	1.0	0.9
15 to 18 inclusive	.8	.7
FEMALE		
19 and over	.9	.8
15 to 18 inclusive	.7	.6
MALE OR FEMALE		
12 to 14 inclusive	.6	.5
6 to 11 inclusive	.4	.3
5 or less	.3	.2

Hired helpers and others boarded are included.

CLOTHING

Operator or home maker	1.0
Other persons:	
Over 24 years	1.4
19 to 24 years	1.7
15 to 18 years	1.3
12 to 14 years	1.0
6 to 11 years	.6
1 to 5 years	.4
Below 1 year	.2

All hired helpers are excluded.

RENT

Operator	1.0
Home maker	1.0
Other persons:	
First male, 15 years of age or over	.2
First female, 15 years of age or over	.2
Second male, 15 years of age or over	.0
Second female, 15 years of age or over	.0
Third male, 15 years of age or over	.2
Third female, 15 years of age or over	.2
And so on.	
First boy, 6 to 14 years of age	.1
First girl, 6 to 14 years of age	.1
Second boy, 6 to 14 years of age	.0
Second girl, 6 to 14 years of age	.0
Third boy, 6 to 14 years of age	.1
Third girl, 6 to 14 years of age	.1
And so on.	
All under 6 years of age	.0

FURNITURE AND FURNISHINGS, OPERATING EXPENSES, LIFE AND HEALTH INSURANCE, AND EXPENDITURES FOR GOODS NOT READILY CLASSIFIED

Operator	1.0
Home maker	1.0
Other persons, regardless of sex or age:	
First	.4
Second	.3
Third	.2
Fourth	.1
Fifth, sixth, and others	.0

All persons housed are included for furniture and furnishings and for operating expenses only.

MAINTENANCE OF HEALTH

Operator or home maker	1.0
Other persons:	
Over 24 years	.4
6 to 24 years	.2
1 to 5 years	.6
Below 1 year	1.0

All hired helpers are excluded.

ADVANCEMENT

Operator or home maker	1.0
Children, male or female:	
Over 24 years	.3
19 to 24 years	.5
15 to 18 years	.3
6 to 14 years	.1
Below 6 years	.0

All hired helpers are excluded.

PERSONAL GOODS

Operator	1.0
Home maker	.4
Other persons:	
Male 24 years and over	1.0
Male 15 to 24 years	.5
Male 6 to 14 years	.4
Female 19 years and over	.5
Female 15 to 18 years	.3
Female 6 to 14 years	.2
Male or female 5 years or less	.1

All hired helpers are excluded.

The relative needs of the different individuals with respect to any group of goods used are determined from the information available from the records of this study only. In the case of food, nutritive value or adequacy of the diet is not taken into account. Personal efficiency in buying and preparing food is not considered. Probably economy in buying and using goods in larger quantities enters into expenditures for food as well as several of the groups of expenditures, operation goods especially.

Apparently, sex made too little difference in the expenditure for clothing, for advancement, and for the maintenance of health to justify a separate scale of units for each sex. With housing, however, sex of individuals of the different ages influences the number of bedrooms required per household. Neither sex nor age made any difference in the expenditures for furniture and furnishings, for operation, for insurance, and for unclassified goods. Both sex and age affected the expenditures for goods of a personal nature.

APPLICATION OF THE COST-CONSUMPTION UNITS

The application of the household-size index scales to the expenditures of $1,104 for the several groups of goods by a family of this study consisting of operator, home maker, two sons, 7 years and 2 years of age, respectively, and two daughters, 9 years and 3 years of age, is shown below:

Individual	Age	Cost-consumption units—for						
		Food	Clothing	Rent	Furniture, operation, insurance, and unclassified goods	Health	Advancement	Personal
Male	34	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Do	7	.4	.5	.1	.4	.2	.1	.4
Do	2	.3	.3	.0	.3	.6	.0	.1
Female	31	.9	1.0	1.0	1.0	1.0	1.0	.4
Do	9	.3	.5	.1	.2	.2	.1	.2
Do	3	.2	.3	.0	.1	.6	.0	.1
Total household-size index		3.1	3.6	2.2	3.0	3.6	2.2	2.2

Item of consumption	Expenditures per family	Household size index	Expenditures per cost—consumption unit
Food	$620	3.1	$200.00
Clothing	180	3.6	50.00
Rent	120	2.2	54.50
Furnishings	15	3.0	5.00
Operating expense	39	3.0	13.00
Health	30	3.6	8.30
Advancement	70	2.2	[1] 31.80
Personal	30	2.2	13.60
Insurance		3.0	
Unclassified		3.0	
Total	1,104		376.2

[1] Per cent of total, 8.50.

The relative weights for food, clothing, rent, or other group of goods used are listed above from the scales as presented on pages 14 and 15. The sum of the weights listed under each gives the household size indexes which, when divided into the respective costs of goods per family, result in the expenditures per cost-consumption unit. The sum of the expenditures per cost-consumption unit amounts to $376.20, in comparison with an expenditure of $1,104 per family.

The percentage of the sum of expenditure per cost-consumption unit devoted to advancement for each family is obtained by dividing the expenditures for all purposes into the expenditures for advancement. For example, in the case of the family above the sum of expenditures per cost-consumption unit, $376.20, divided into the expenditure per cost-consumption unit for advancement, $31.80, gives 8.5 per cent, the proportion of the sum of expenditures per cost-consumption unit devoted to advancement.

As a rough test of accuracy of the household-size index scales, the families were grouped according to the number of children in family and the average of the sums of expenditures per cost consumption unit were obtained. These are given in Table 6 in comparison with the averages of expenditures per family.

Accurate scales would correct variations due to composition or make-up of the individual family and would give uniform averages, provided efficiency in buying and using goods were equally distributed among families of different sizes and provided the standard of living is not lowered with an increase in the number of persons per family. The sum of expenditures per cost-consumption unit decreases rather regularly as the size of the family increases. This decrease is distributed about equally among the separate averages for

food, rent, and operation goods. Apparently the scales for these groups of goods give too great weight to additional members of the family. The data available are not sufficient for judging whether this means that too little allowance was made for adults or that more allowance should be made for the fact that these goods can be purchased and utilized to better advantage when the families are large. The average for the other groups of goods show considerable variation with increased size of family, but these variations are not noticeably downward.

TABLE 6.—*The average expenditures for all purposes per cost-consumption unit in comparison with the average expenditures per family for the year ended December 31, 1919, among 861 farm homes of selected localities of Kentucky, Tennessee, and Texas, arranged according to number of children*

Number of children per family	Families in groups	Expenditures for all purposes	
		Per family	Sum of all per cost-consumption unit
	Number	*Dollars*	*Dollars*
None	130	1,191	575
1	183	1,259	516
2	163	1,404	495
3	131	1,488	473
4	93	1,496	446
5	56	1,614	428
6	47	1,730	419
7	58	2,022	431
All families	861	1,437	490

It is realized that the household-size index scales here used are based on too little information to be considered final. At best they seem to be only fair approximation of the conditions found among many families of this study.

The validity of each set of scales was tested by the method of "least squares," to see which sets contained the largest degree of error. It was found that the most unsatisfactory units were in connection with food, rent, operation goods, and personal goods. The results were fairly satisfactory for clothing, furniture and furnishings, maintenance of health, advancement, and life and health insurance. It is hoped that their use here may lead to a still more satisfactory means of comparing the cost of the different goods among various families. For this reason the sum of costs obtained by their use, and the percentage of these costs devoted to advancement, will be subordinated throughout the study by total expenditures per family. The use of both of these units of comparison should throw additional light on the relation of the ability to pay to the standard of living and give a suggestion as to which of the units of comparison is superior.

CRITERIA OF THE ABILITY OF FARMERS TO PAY

As with the standard of living, some measure or measures of the ability of farmers to pay must be explained and accepted before the facts on which conclusions are to be based can be presented. The

measures selected should be indicative of the farmer's ability to pay as reflected in the possession of funds obtained from all possible sources. For the farmer, the funds available for family living are primarily the resultant of the efficient and effective use of sufficient and properly balanced farm business resources. In some instances additional funds are available in the form of returns from labor off the farm, interest from investments, gratuities—that is, gifts or inheritances—and increased land values.

Chief among the factors available for consideration as measures of the farmer's ability to pay or to provide, as tabulated for this study, are farm income, labor income, disposable net income, acres per farm, total farm capital, operator's working capital, cost of operation, index of the diversity of farm enterprises, net worth of the farmer, percentage of net worth obtained as gratuitious wealth, percentage of net worth obtained through net increase in the value of land, number of years since the operator began his earning life and the operator's average annual rate of accumulation.[10]

The first three of these factors, farm income, labor income, and disposable net income are suggestive of the farmer's liquid or quick assets, his ability to pay as measured by the profitableness of farming and by the receipt of funds from all other sources during the year of study. The first of these three, farm income, constituting the difference between farm business receipts and expenses, can not be regarded as a satisfactory index of the farmer's ability to pay since it makes no allowance for interest charges on borrowed capital nor for income from sources outside the farm.

Nor can labor income be accepted as a true index of the farmer's ability to pay. In determining labor income deduction is made for interest on capital invested regardless of whether interest is paid as an actual farm business expense. Again, with labor income, receipts from sources other than the farm business are not accounted for as available for family living.

Disposable net income, that is, the total returns per family from labor on and off the farm and from all farm and other investments is the best measure available of the farm family's liquid or quick assets for the year of study. Disposable net income, however, is regarded as an inadequate measure of the farmer's ability to pay since it represents the returns for only one of the years during which the standard of living prevailing at the time of study has been in the process of establishment. One year's farming operations can scarcely be regarded as typical unless all farmers are engaged in the same enterprise. Furthermore a part of the expenditures for any one year are often made before the income from farm operations for that year is available. Funds accumulated during previous years or anticipated from farm operations or from investments of future years are sometimes drawn upon. The use of bank or store credit may be resorted to in many instances.

Acres, total farm capital, operator's working capital, cost of operation and the index of diversity may be regarded as indicative of the farmer's ability to pay only as their possession or use (practice in the case of diversity) are reflected in the family's total net or liquid assets. The last of these, the index of diversity, represents

[10] See definitions, p. 31.

an attempt at mathematical measurement of the degree of diversity and is now rather generally discarded as an ineffective tool in analysis. Relations discovered through its use in connection with the study will undoubtedly prove to be of little or no significance.

The other four of these factors, acres per farm, total farm capital, operator's working capital and cost of farm operations are rather generally accepted as measures of size or magnitude of the farm business. "Acres" is probably the most widely used of all these measures. The English acre of 43,560 square feet, which is in use in the United States, is a standard measure of size. Acreage data are easily obtained when other data are not available. But the acre is not always a complete measure of size since it fails to account for the intensity of farm operations caused by different locations and topographies. Similarly, capital invested in the farm, the farm equipment and livestock is not regarded as a definite measure of size of the farm business. As with acres, capital invested does not account for the intensity of farm operation, especially in truck farming in comparison with cattle raising. Of the two types of capital, total farm capital and operator's working capital, the former is here regarded as representing more closely the magnitude of the farm business since it includes all the resources at the command of the operator.

Cost of operation of the farm business is probably the best measure of size since it takes into account all economic agencies entering into the farm operations during the year. In this measure of size all factors of production, whether land, labor, or capital, are given relative weights. More than any other measure of size here considered cost of operation should reflect the capacity of the farmer as an economic producer. The cost of operation may fail to account for changes in land values or variations in price levels of labor and equipment over a series of years. This, however, is a matter of little significance for the year's time.

The other factors or criteria here considered as indicative of the farmer's ability to pay, that is, net worth of the farmer, percentage of the net worth obtained as gratuitous wealth, percentage of net worth received from net increase in the value of land, the number of years since the farmer began his earning life, and the average annual rate of accumulation of wealth, refer directly or indirectly to the total net assets of the farm family.

Net worth of the farmer, percentages that gratuitous wealth and net increase in the value of land are of net worth, the average annual rate of accumulation, and the number of years the farmer has been earning, are all more or less indicative of the capacity of the farm family to produce, to obtain wealth, and to save wealth through a series of years. Net worth is largely the result of saving which has long been recognized by economists as having for its ultimate goal a higher standard of living properly balanced over life's span. Normally man's desires for goods satisfying physical, mental, esthetic, and spiritual needs are so multifarious that when he is supplied with an accumulated store of economic purchasing power he is inclined to convert this power into satisfactions contributing to his standard of living. But it must be recognized that man's wants for goods contributing directly to the family living are constantly being balanced against other wants such as increased agencies of production,

more working capital, more land, and the use of more labor. Furthermore, his wants for the present must be balanced against his wants of the future. Sometimes the farmer's most intensive wants are along the line of greater production—larger business—at the expense of family living. Thus, the desirability of the further study of the relation of accumulated net worth to the standard of living.

The average annual rate of accumulation of wealth deserves consideration as an index of the ability to pay, since accumulation, the resultant of producing and saving, means a source of increased purchasing power ultimately. Regardless of the fact that for a given year living expenses must be deducted before a net accumulation can be determined, this accumulation means finally an available fund, the creation of which adds greatly to future income and thus reflects itself in an increased purchasing power. Though a positive correlation between the average annual rate of accumulation and the standard of living may be expected, it must be noted that accumulation may be at the expense of the standard of living or that it may mean in many instances merely an excess of income over the prevailing standard of living.

The percentages that gratuitous wealth and increased land values are of net worth are of significance mainly as they make available larger sources of producing power, increased purchasing power, or added funds for accumulation or for family living purposes. The latter of these two factors, the percentage that increased land value is of net worth, is of significance only with owners, since tenants and croppers in the main have no land holdings. It is probable that the influence of both these factors is accounted for fully in net worth or in the average annual rate of accumulation.

The number of years since the farmer began his earning life can not be regarded as being equally significant with net worth of the ability to pay. The influences of gratuitous wealth on the ability to produce wealth and to save wealth or use it effectively in the production of additional wealth are not accounted for in the years the farmer has been earning and saving, as they are accounted for in the total net worth. Doubtless the influence of the number of years since the farmer began his earning life is almost negligible as an index of the ability to pay.

The averages of each of selected criteria of the ability to pay are given by tenure groups along with the averages of factors pertaining to the farm business in Table 7.

These averages differ widely for owners, tenants, and croppers. This is true especially with the net worth of the farmer, since owners have about 5 times as much accumulated wealth as tenants and 12 times as much accumulated wealth as croppers on an average. But there is less variation than would be expected in the percentages of net worth obtained gratuitously; that is, by inheritance, gift, or marriage. The percentage of net worth due to net increase in land values shows a wide variation for the three tenure groups. Croppers received less than 1 per cent and tenants less than 2 per cent of their net worth from increased land values in comparison with over 30 per cent received by owners from the same source. This is to be expected since neither tenants nor croppers, except in a few instances, have attained ownership of land. The rate at which the farmers of the study accumulated wealth varies without

regard to the number of years that they have spent as earners. Croppers accumulated about $95 for each year of their earning life, tenants $357, and owners $1,107.

TABLE 7.—*Averages of some factors or criteria considered as indicative of ability of farmers to pay; year ended December 31, 1919, 861 farm homes of selected localities of Kentucky, Tennessee, and Texas*

Item	All farmers	Owners	Tenants	Croppers
Number of farmers	(861)	(411)	(321)	(129)
Disposable net income	$2,178.00	$2,429.00	$2,141.00	$1,422.00
Acres per farm	108.3	132.0	104.6	42.3
Total farm capital per farm	$21,509.00	$24,734.00	$22,716.00	$8,026.00
Operator's working capital	$2,950.00	$3,716.00	$2,836.00	$767.00
Cost of operation	$2,947.00	$3,327.00	$3,108.00	$1,346.00
Index of diversity of farm enterprises	2.6	2.9	2.4	1.9
Net worth of the farmer	$14,502.00	$25,998.00	$5,184.00	$1,274.00
Percentage of net worth obtained as gratuitous wealth	17.0	22.1	12.0	12.9
Percentage of net worth obtained through net increase in the value of land	15.3	30.5	1.8	.7
The number of years since the farmer began his earning life	23.4	27.1	19.9	20.5
Operator's average annual rate of accumulation	$673.00	$1,107.00	$357.00	$95.00

On an average, over a third of the number of years since the farmer began his earning life, 8.7 years out of 23.4 years, were spent in occupations other than farming. A number of the most successful owners in the Tennessee and Kentucky localities had used a large portion of their earnings in occupations other than farming. Many of these had taken up farming for other reasons than that they had failed in business. Others, more or less incompetent, seem to have vacillated between farming and other occupations. With this factor, as with the total number of years since the farmer began his earning life, the influence is insignificant with regard to the ability to pay.

With this consideration of the factors or criteria for which data are available net worth of the farmer is accepted as the most adequate measure of the farmer's ability to pay. Net worth represents the total value of all the unencumbered wealth of the farm family at the time of the study. While it may not be an indication in many instances of the liquid or the quick assets for the year of study, it is regarded as more significant of the reaction of the farm family to its economic situation or environment than is income. It must be recalled that three-eighths of the farm family's living is provided without direct purchase, that is, furnished by the farm without the use of funds. Furthermore, the farmer's income is usually very unevenly distributed throughout the year. Then, too, the upkeep and enlargement of the farm business resources may mean keen competition with family living during any particular year. When all is said, both farm and family income may be less significant of the quick or the liquid assets than is total net worth.

Although selected as the most adequate measure, net worth will not be used to the exclusion of all other similar factors in the further analyses of the ability to pay as related to the standard of living. The average annual rate of accumulation of wealth might be regarded as an equally satisfactory measure except that it fails to include wealth received gratuitously or from increases in land values. On this account the average annual rate of accumulation should be

slightly more indicative than net worth of the farmer's capacity as a producer. Other things being equal, capacity as a producer should mean ability to pay, therefore the average annual rate of accumulation is accepted with net worth as a measure of the ability to pay, for the purpose of further analyses. Several other factors, regarded of less significance than net worth or the average annual rate of accumulation of the ability to pay are included in some of the analyses, primarily for the purpose of discovering some of the interrelations which may be involved in the study. Among these additional factors are the number of years since the farmer began his earning life, acres per farm, cost of operation of the farm business and index of diversity of the farm enterprises. The inclusion of acres and cost of operation in certain of the analyses should throw some light on the extent to which farm business resources are reflected in the ability of farmers to pay.

ABILITY OF FARMERS TO PAY AS RELATED TO STANDARD OF LIVING

The relation between the standard of living in farm homes and the ability of farmers to pay, as measured by net worth, annual rate of accumulation, and years since the farmer began work for self, is evident from Table 8. The standard of living is measured in terms of the sum of expenditures for all purposes per family and per cost-consumption unit and in the percentage that the expenditures for advancement are of the sum of all expenditures per cost-consumption unit.

Evidences of close relations between each, the net worth of the farmer and the average annual rate of accumulation and expenditures in all terms of measurement are noted in Table 8. Of these two criteria of the ability to pay the former seems to have the more significant bearing on the standard of living. This is to be expected since the amount of purchasing power available is of more importance usually than is the rate at which it has been accumulated. The number of years since the farmer began his earning life are less closely related to the standard of living than are net worth and annual rate of accumulation. Again, this is to be expected since the total amount of wealth available is of more significance than the time required for its accumulation. Few men strive equally hard to increase their ability to produce wealth and to save more money as they grow older. Furthermore, different demands are made upon the accumulated funds by different families. Although the earning span or life of a competent and thrifty man is characterized by a gradually rising accumulative ability until some where near the age of 50, allowance must be made for additional demands upon accumulative funds for the family living. But these demands would probably be met in many instances by the contributions made by the sons and daughters to the family living fund.

Other criteria of the farmer's ability to pay were tested for relations with the standard of living. These included the percentage of the total net worth received from gratuitous sources and the percentage of the total net worth obtained from net increases in the value of land. Neither the percentage of the total net worth re-

ceived from gratuitous sources, that is, through inheritance, gift, or marriage, nor the percentage of net worth obtained from net increase in the value of land show any significant relation to the standard of living as measured by any of the three terms of expenditure. Little or no relation was found between the disposable net income and expenditures in any term of measurement. This was to be expected since the net income for any number of farms is subject to wide fluctuations during any one year as well as over a number of years. Expenditures for family living are often made before the income from farm operations for that year is available. Funds accumulated during previous years or anticipated from farm operations of the future years are often drawn upon.

TABLE 8.—*Relation of the farmer's ability to pay to standard of living in the farm home for year ended December 31, 1919, in selected localities of Kentucky, Tennessee, and Texas*

Economic status criteria	Farms operated	Average size of family	Living expenses, all purposes		
			Per family	Per cost-consumption unit	
				Total	Devoted to advancement
Net worth of farmer:	*Number*	*Persons*	*Dollars*	*Dollars*	*Per cent*
Less than $1,500	144	4.6	849	309	3.1
$1,500 to $3,499	172	4.9	1,180	391	3.6
$3,500 to $7,499	134	4.8	1,367	455	5.2
$7,500 to $12,499	127	4.6	1,437	484	6.3
$12,500 to $27,499	147	4.4	1,633	563	6.6
$27,500 to $42,499	58	4.0	1,914	684	8.8
$42,500 to $67,499	41	4.8	2,478	817	9.7
$67,500 or over	32	3.8	2,534	903	11.2
All farmers	855	4.6	1,432	490	5.6
Annual rate of accumulation:					
Less than $50	87	4.7	858	309	2.9
$50 to $249.50	253	5.1	1,205	380	4.4
$250 to $449.50	137	4.5	1,333	452	5.0
$450 to $649.50	123	4.3	1,437	513	5.9
$650 to $849.50	47	4.5	1,566	531	6.5
$850 to $1,049.50	38	3.7	1,618	606	6.6
$1,050 to $1,249.50	37	4.4	1,670	589	7.8
$1,250 to $1,649.50	45	5.1	1,942	610	8.1
$1,650 to $2,449.50	41	3.9	2,110	782	9.0
$2,450 or over	41	4.0	2,578	934	8.7
All farmers	849	4.6	1,433	490	5.5
Years since the farmer began work for himself:					
5 or less	41	3.1	1,059	454	4.3
6 to 10	98	3.8	1,145	469	3.3
11 to 15	119	4.8	1,324	464	4.3
16 to 20	139	5.2	1,469	491	4.8
21 to 25	112	5.2	1,596	499	6.3
26 to 30	95	5.5	1,801	542	7.3
31 to 35	81	4.7	1,553	485	7.2
36 to 40	73	4.0	1,532	521	5.9
41 to 45	50	3.5	1,386	513	6.4
46 to 50	35	3.7	1,220	431	6.8
50 or more	10	3.4	900	480	10.1
All farmers	853	4.6	1,437	490	5.6

RELATION OF FACTORS INFLUENCING DESIRES OR DEMANDS OF THE FAMILY TO STANDARD OF LIVING

Before tentatve conclusions can be drawn from the facts presented consideration must be given to some of the factors influencing or

shaping the desires or the demands of the family on the funds available for living. Obviously the number of persons and the different ages of the persons composing the family have direct bearings upon the amounts, varieties, and qualities of goods used, and consequently upon the expenditures for family living purposes. The average sizes of household and family and the average ages of different members of the family, by tenure, are given in Table 1. For the purpose of further analysis all families are grouped in family living cycles according to the approximate ages of all sons and daughters at home as follows:

Homes with no children born.
Homes with children of ages from:
0 to 5 years.
0 to 11 years.
6 to 11 years.
6 to 18 years.
12 to 18 years.
12 to 24 years.
19 to 24 years.
19 years or more.
Homes from which all children had gone at time of study.

The larger age groups, 0 to 11 years, 6 to 18 years, 12 to 24 years, and 19 years or more accommodate those families, the ages of whose children are not covered by the smaller groups 0 to 5 years, 6 to 11 years, 12 to 18 years, and 19 to 24 years. Even with the extended groups, not all families could be classified definitely into any one group. The object of this classification is to try to account for the influence of increased age as well as numbers of sons and daughters included in the farm family. The relation of the size of family and the family living cycles, that is, periods of growth and development of the sons and daughters composing the family, to expenditures per family and per cost-consumption unit is shown in Table 9.

There is evidence of a distinct, although not a striking, positive relation between size of family and expenditures per family, only. Roughly, expenditures per family rise from almost $1,200 to over $2,000 as the size of family goes up from two to nine individuals. Thus, while the expenditures per family increase rather regularly, the addition of seven persons per family means on an average an increase of only $800, or approximately $114 per person. The relation between size of family and the sum of expenditures per cost-consumption unit appears to be negative; that is, the expenditures tend to decrease with an increase in the number of persons per family. This may be interpreted as meaning lower standards of living for larger families, in general, or it may be due to the fact that the scales used in determining the costs per consumption units did not account for all fluctuation in expenditures due to different numbers of individuals per family in this case. From the standpoint of the percentage of expenditures per cost-consumption unit devoted to advancement, fluctuations due to increased size of family seem to have been completely eliminated.

Family living cycles seem to be less closely related than size of family to the standard of living except, possibly, as the standard of living is measured in terms of the percentage of expenditures per cost-consumption unit devoted to advancement. A careful study of the average size of family and the average expenditure per family

under family living cycles (Table 9) gives further evidence of the bearing of size of family upon expenditures per family.

TABLE 9.—*Relation of size of family and of family living cycles to sum of expenditures per family and per cost-consumption unit and the percentage of expenditures devoted to advancement per cost-consumption unit, for year ended December 31, 1919, in farm homes of selected localities of Kentucky, Tennessee, and Texas*

Persons per family	Operators in group	Average size of family	Living expenses, all purposes		
			Per family	Per cost-consumption unit	
				Total	Devoted to advancement
	Number	*Persons*	*Dollars*	*Dollars*	*Per cent*
2	130	2.0	1,191	575	5.0
3	183	3.0	1,259	516	5.8
4	163	4.0	1,404	495	5.7
5	131	5.0	1,488	473	5.5
6	93	6.0	1,496	446	6.0
7	56	7.0	1,614	428	5.9
8	47	8.0	1,730	419	6.6
9	58	9.0	2,022	431	4.9
All families	861	4.6	1,437	490	5.6
Family living cycles:					
No children born	88	2.0	1,224	613	5.1
Children at home—					
0 to 5 years	107	3.6	1,079	450	3.7
0 to 11 years	147	5.8	1,359	441	4.2
6 to 11 years	65	3.9	1,322	499	4.4
6 to 18 years	164	6.7	1,681	444	6.2
12 to 18 years	69	3.9	1,567	543	7.8
12 to 24 years	92	5.7	1,839	500	7.2
19 to 24 years	44	3.4	1,580	559	10.4
19 or more years	48	3.5	1,317	461	5.4
Children gone	32	2.0	1,097	551	4.8
All families [1]	856	4.6	1,437	491	5.6

[1] Five of the families which could not be classified in any one group are excluded.

Schooling of the parents—that is, of the operator and the home maker—is regarded as a possible influence on the desires for higher standards of living and therefore as making larger demands upon the funds needed for family living. The extent of schooling of the farm operators and of the home makers by tenure groups is shown in Table 10.

TABLE 10.—*Number and percentage of farm operators and home makers having schooling of less than eighth grade, ninth to twelfth grade, and more than twelfth grade (or equivalent in each case) by tenure. Farm homes of selected localities of Kentucky, Tennessee, and Texas*

Tenure	Operator						Home maker					
	Total reporting	Extent of education					Total reporting	Extent of education				
		8th grade or less		9th-12th grade		More than 12th grade		8th grade or less		9th-12th grade		More than 12th grade
		No.	*P. ct.*	*No.*	*P. ct.*	*No.*	*P. ct.*		*No.*	*P. ct.*	*No.*	*P. ct.*	*No.*	*P. ct.*
All families	825	676	81.9	109	13.2	40	4.9	800	598	74.8	165	20.6	37	4.6
Owner families	389	289	74.3	67	17.2	33	8.5	372	247	66.4	97	26.1	28	7.5
Tenant families	310	266	85.8	37	11.9	7	2.3	305	242	79.3	54	17.7	9	3.0
Cropper families	126	121	96.0	5	4.0	0	0	123	109	88.6	14	11.4	0	.0

In an attempt to account for the counter influences of the different amounts of schooling of both the operator and the home maker all families are grouped into eight classes rather than in three according to extent of schooling of the former in conjunction with that of the latter and vice versa. Groups recognized in this classification are:

Both operator and home maker, eighth grade or less.
Operator, eighth grade or less; home maker, 9 to 12 grades.
Operator, eighth grade or less; home maker, more than 12 grades.
Home maker, eighth grade or less; operator, 9 to 12 grades.
Home maker, eighth grade or less; operator, more than 12 grades.
Both operator and home maker, 9 to 12 grades.
Operator, 9 to 12 grades; home maker, more than 12 grades.
Home maker, 9 to 12 grades; operator, more than 12 grades.
Both operator and home maker, more than 12 grades.

The number of families in each of these groups is shown in Table 11, with the average expenditures per family and per cost-consumption unit for the several groups.

TABLE 11.—*Relation of combined grades of schooling of operator and home maker to standard of living in the farm home for year ended December 31, 1919, in selected localities of Kentucky, Tennessee, and Texas*

Schooling of operator and home maker	Farms operated	Average size of family	Living expenses, all purposes		
			Per family	Per cost-consumption unit	
				Total	Devoted to advancement
	Number	*Persons*	*Dollars*	*Dollars*	*Per cent*
Both, 8th or less	564	4.9	1,336	435	4.6
Operator, 8th or less; Home maker, 9th to 12th	71	4.2	1,389	516	6.4
Operator, 8th or less; Home maker, more than 12th	10	3.4	1,580	628	7.0
Home maker, 8th or less; Operator, 9th to 12th	23	4.2	1,426	503	7.6
Home maker, 8th or less; Operator, more than 12th	5	5.8	1,960	584	15.2
Both, 9th to 12th	65	4.0	1,482	560	7.3
Operator, 9th to 12th; Home maker, more than 12th	14	3.7	2,071	771	8.7
Home maker, 9th to 12th; Operator, more than 12th	20	4.0	1,990	745	7.8
Both, more than 12th	17	3.2	2,547	1,051	12.6
All families	789	4.6	1,418	485	5.5

The relation between schooling of the operator and the home maker to the standard of living (Table 11) is not at all striking. A part of the existing relation may be obscured in tenure status and in age of the operator and home maker, factors which are not accounted for in Table 11. With regard to the three measures of living expenses schooling seems to be more closely related to expenditures per cost-consumption unit than to either expenditures per family or to the percentage of expenditures per cost-consumption unit for advancement.

Owing to the small number of families in all schooling groups, other than the first listed, and to the complexity involved in at-

tempting to account for the influence of the schooling of the two individuals rather than of one only, evidences of the low relations between schooling and the standard of living were regarded as suggestive of further analyses of the data. As a further test of the relation of schooling to expenditures, average expenditures were obtained for groups of families sorted on the basis of grades of schooling of the operator and again of the home maker from 0 years or grades up to 16 years or grades. About the same relations as shown in Table 11 were apparent. The most significant rises in expenditures in all three terms of measurement appear to start somewhere between the fifth and the eighth grade and to continue up through the sixteenth grade, that is, the fourth year in college. This being true, schooling as referred to in further analyses is in terms of combined grades of operator and home maker, except where specified otherwise.

FURTHER CONSIDERATION OF RELATION OF FACTORS BY METHOD OF GROSS CORRELATION

The relation of the several criteria of the ability to pay and of the factors influencing the desires or demands of the family to the standard of living, as shown by the tabular method, are presented more concisely though in less detail, by the method of gross correlation[11] in Table 12. Those factors regarded as reflecting the farm business resources in the ability to pay are listed separately.

TABLE 12.—*Coefficients of gross correlation for criteria of ability to pay and factors influencing desires for and demands on family living and the standard of living in terms of expenditures per family, per cost-consumption unit and percentage of all expenditures per cost-consumption unit for advancement, for year ended December 31, in farm homes of selected localities of Kentucky, Tennessee, and Texas*

Factors or criteria selected	Expenditures		
	Per family	Sum of all per cost-consumption units	Per cent for advancement per cost consumption unit
	Coefficients of correlation		
Net worth of farmer	[a] 0.53	0.56	0.31
Average rate of accumulation	.48	.54	.22
Number of years since the farmer began his earning life	.10	.06	.18
Number of persons in family	.27	−.17	.02
Family living cycle	.15	.00	.16
Schooling of both operator and home maker	.25	.40	.24
Schooling of operator	.31	.43	.29
Schooling of home maker	.26	.43	.29
Acres per farm	.41	.46	.27
Cost of operation of farm business	.53	.27	.12
Index of diversity of farm enterprise	.16	.15	.21

[a] With a sample of 861 cases, the probable error for the coefficient of correlation of 0.00 is ±0.023. For this reason, the probable error of the different coefficients of correlation is not shown; any coefficient of 0.12 or larger may be considered to be due to other causes than chance.

[11] The coefficient of gross correlation, a commonly accepted statistical measure of the degree of relation between two series of variable quantities assumes a value between 1 and −1. If the coefficient of correlation be 0, there is no relation between the two factors considered; that is, they rise or fall independently of each other. If the coefficient equals 1 the correlation is said to be perfect positive; that is, the two factors move in the same direction. If the coefficient equals −1, the correlation is perfect negative; that is, the factors vary inversely.

The coefficient of gross correlation between each of these factors and the sum of expenditures per family, per cost-consumption unit and the percentage of the sum of expenditures per cost-consumption unit devoted to advancement substantiate somewhat the evidences of relations already pointed out in connection with the results given in tabular form. There are fairly high correlations between both net worth of the farmer and the average annual rate of accumulation, with expenditures per family and per cost-consumption unit. The number of years since the farmer began his earning life are scarcely related to the expenditures in any of the three terms of measurement.

The coefficients of gross correlation between both the number of persons per family and the family living cycle, and expenditure in each of the three terms of measurement are significantly low. This is to be expected with expenditures per cost-consumption unit and the percentage of expenditures per cost-consumption unit for advancement since the influence of varying numbers and ages of persons composing the family upon expenditures has been eliminated. The low correlation for both, the number in the family and the family living cycle, with expenditures per family may be accounted for in part by the economy possible from the provision of goods in quantities for larger families or by a decrease in the standard of living with an increase in the size of family. As stated previously, coefficients of correlation for schooling of the operator and the home maker and expenditures are low, with expenditures per family especially.

Fairly high coefficients of gross correlation between both acres and cost of operation of the farm business and expenditures suggest the reflection of farm business resources in the ability to pay. Further comment on the relations shown in Table 12 will be made in connection with the interrelation of factors and criteria used.

INTERRELATION OF FACTORS AND CRITERIA USED IN ANALYSIS AND CONSIDERATION OF OTHER FACTORS NOT ACCOUNTED FOR BY GROSS CORRELATIONS. MULTIPLE CORRELATIONS

Although the coefficients of gross correlations presented in Table 12 are indicative of the degree of relation of each of the several economic and other factors to expenditures in each of the three terms of measurement, they fail to account for the interrelation of all factors involved in the situation. They fail to designate the limitations of the factors used and to account for the influence of many other factors not available for use in connection with the analyses. Attention has been called to the fact that none of the factors or criteria of the ability to pay are indicative of the liquid assets available for the year of study. For example, the extent to which net worth of the farmer is reflected in liquid or quick assets has not been determined. Similarly, the extent to which the cost of operation of the farm business may compete with family living for the funds available is unknown. Both of these two factors, net worth of the farmer and cost of operation of the farm business, fail to account for variations in the annual income owing to fluctuation in the prices of farm products. Furthermore, both ignore the question as to whether the year of study could be considered typical for any locality with regard to farm income.

Further, the method of gross correlation does not show what part schooling of the operator and home maker and composition or make-up of the family play in the formation of desires and demands in connection with family living. Many social relationships influencing expenditures of the farm family fall outside the field of schooling. Reading at home, visiting and social contacts of all persons composing the families with persons of other families through neighborhood groups and other groups have not been considered. Ways in which the family reacts psychologically to its social and economic situations are given no consideration.

Finally, the method of gross correlation gives no suggestion as to the adequacy of expenditures for one year as a measure of the standard of living. Expenditures for the year of study may be extremely nontypical for many of the families represented. As here used, expenditures do not signify a cash outgo but the value of all economic goods used. The proportion of these goods furnished by the farm may be abnormally high or low with many families. Quantities of certain goods purchased during the years immediately preceding the study may cause other variations. Marketing facilities may influence the expenditure for family living as well as the returns from farming.

Owing to the complexity of all factors involved the method of gross correlation is ineffective as a means of determining the part of the total variation of all factors which could be accounted for by those factors used in the analyses and of selecting from the factors used those exerting the greatest influence or having the closest relation to the standard of living. The nearest approach to the solution of these problems is the method of multiple correlation, one of the results of which is expressed in the coefficient of determination. Through the use of this method of analysis the percentage of the total relation accounted for by the independent variable factors selected and the proportional contribution of the two sets of these factors, those indicative of the ability to pay and those indicative of the desires and demands on family living, were determined.

Coefficients of determination were ascertained for all the independent variables shown in Table 12 with each of the three dependent variables; that is, with expenditures in each of the three terms of measurement. With expenditure per family as the dependent variable, it was found that 48 per cent of the total variation of all factors could be accounted for by the factors used in the analysis. Three-fourths of this 48 per cent of variation which could be accounted for, or 36 per cent of the total variation, is attributable to criteria of the ability to pay and one-fourth, or 12 per cent of the total variation, is credited to factors indicative of the desires or demands of the family on family living.

With expenditures per cost-consumption unit as the dependent variable, 42 per cent of the total variation could be accounted for by the independent variable factors used. Less than three-fourths, 68 per cent of this 42 per cent accounted for, or 28.6 per cent of the total variation, is attributable to criteria of the ability to pay and the remaining 32 per cent, or 13.4 per cent of the total variation, is due to factors indicative of the desires or demands of the family.

With the percentage of expenditures per cost-consumption unit for advancement as the dependent variable, only 16 per cent of the total variation could be accounted for by the independent variables used in the analysis. Less than three-fourths, 68 per cent, of this 16 per cent of the variation which could be accounted for, or 10.9 per cent of the total variation, is due to criteria of the ability to pay and 32 per cent, or 5.1 per cent of the total variation, is credited to factors indicative of the desires or demands of the family for the economic goods of family living.

Of the variation which could be accounted for the largest share is attributable to net worth of the farmer. This share or percentage amounts to about one-fourth of the variation which could be accounted for with each of the three dependent variables. Interpreted in proportions or percentages of the total variation this one-fourth amounts to 12 per cent of the total with expenditures per family, 10.2 per cent of the total with expenditures per cost-consumption unit, and 4 per cent of the total with the percentage of expenditures per cost-consumption unit for advancement. This does not imply, however, that net worth of the farmer is the most significant index of the standard of living. About as much of the variation which could be accounted for is attributable to size or magnitude of the farm business, measured by acres and cost of operation, as is due to net worth of the farmer. It is probable that both acres and cost of operation are reflected through net worth to the standard of living.

PRESENTATION OF INFERENCES OR CONCLUSIONS

Owing to the small number of records from which the data were obtained and the wide variations between localities, tenure status, and family make-up, inferences or conclusions here presented can not be regarded as absolute or final. They are suggestive of further study of a larger number of records representing specific regions and types of farming. Among the inferences drawn, the following are presented as suggestions for further study:

(1) Economic advancement, reflected in the ability of the farmer to pay or to provide, bears a fairly close relation to the standard of living. This does not imply that family living is not curtailed in many instances in order that the farmer may advance economically, that is, increase his productive capital at the expense of the family's welfare. Nor does it imply that schooling of all members of the family and participation of the family in social activities are not reflected in the ability to pay as well as in the demands for the economic goods of family living.

(2) Both size of family and family-living cycles—that is, periods of growth and development—are directly related to the standard of living, although apparently to a less degree than is the ability to pay. But some of the actual relation between the demands on family living, from these causes, and the ability to pay may not be accounted for because of the counteracting influence of an increased number and age of persons composing the family on the ability to pay.

(3) Schooling of the parents bears less relation to the standard of living, in terms of expenditures, than does economic advancement—that is, the ability to pay. Allowance has not been made, however, for efficiency, due to schooling, in buying and using goods. Fur-

ther, schooling of the operator and home maker only can not be accepted as indicative of all the desires developed and demands made upon family living through education. Schooling of the other members of the family, in homes where there are sons and daughters, is fully as significant a factor as is schooling of their parents. In addition the influence of study and reading at home and of social participation in neighborhood and community activities are not taken into account in the analyses. Schooling of the operator and home maker is more closely related to the annual rate of accumulation and to net worth than to expenditures per family and per cost-consumption unit which means undoubtedly that it has an indirect positive relation to the standard of living.

(4) With regard to relation of the ability to pay to the standard of living the sum of all costs per cost-consumption unit seems to be the most satisfactory of the three measures of expenditures. Expenditures per family seems equally satisfactory for comparing expenditures for family living among different localities or sections, different tenures, and different trades. The percentage of all expenditures per cost-consumption unit for advancement appears to be the least satisfactory of the three measures of expenditure. This is due in part to wide variations in the expenditure for goods classified under advancement in comparison with rather limited variations in expenditures for food, clothing, or house rent. Furthermore, the arbitrary classification of goods with regard to advancement may help render the percentage of the total expenditures for this purpose somewhat unsatisfactory as a measure of the standard of living.

All three measures of expenditure should be further tested by the use of larger numbers of records.

(5) The evidence is not sufficient to conclude that the standard of living is due primarily to economic advancement. Nor is it sufficient to conclude that the standard of living keeps pace with the growth of new demands and new desires developed through growth and through education, that is, through information, social participation, and experience. Undoubtedly economic advancement, ability to pay, and the development of new desires and demands are dependent upon each other. If the ability to pay, that is, possession of more money to spend, be regarded as the first requisite, more money to spend must mean more comforts for the farm family and more lasting satisfactions for all persons composing the family. Desires for higher standards of living and the ability to pay must go hand in hand.

DEFINITION OF FACTORS

Farm income is the difference between farm business receipts and expenses for the year. Interest on farm capital, whether borrowed or not, is not deducted. The value of family labor is considered an expense. The data are based on the farm operated as a whole regardless of tenure of the operator.

Labor income represents the farmer's net return for the year, after all farm expenses including unpaid labor, interest on investment, and depreciation on equipment have been deducted.

Disposable net income refers to the total returns per family from labor of the operator and his family both on and off the farm and from farm and other investments, with no deductions for rent and

interest except when actually paid by the operator. It includes all goods furnished by the farm for family living purposes.

Acres per farm refer to the total size of farm, that is, to all land worked by the farmer alone or with paid or unpaid labor from within or from without his immediate family.

Total farm capital represents the value, expressed in terms of dollars, of all property per farm; including land and buildings, stock, machinery, supplies, and cash for running expenses averaged for the beginning and the end of the year of study.

Operator's working capital includes that part of the total farm capital not invested in land, buildings, and permanent improvements.

Cost of operation of the farm business means interest on the total investment along with the cost of all labor expended in producing crops, livestock, and other products during the year of study.

Diversity of farm enterprises: The index of diversity is calculated as outlined in United States Department of Agriculture, Department Bulletin 341 (p. 81) by finding the sum of the magnitude in terms of the value of total receipts, of all enterprises on the farm, expressing the magnitude of each enterprise as a percentage of the total magnitude of all farm enterprises, squaring these percentages, adding the squares and dividing their sum into unity. The diversity index thus calculated gives weight not only to the number of farm enterprises but also to the relative size of these enterprises.

Net worth of the farmer is the value of all his wealth, in terms of dollars, in whatever form it was found, less all indebtedness, both for the year of study.

Percentage of net worth obtained as gratuitous wealth is the percentage of the total net worth received from inheritance, gift, or marriage.

Percentage of net worth obtained through net increase in the value of land is the percentage of all net worth resulting from net increase in land value. This net increase was calculated by deducting the purchase price from the sale price of all pieces of land ever owned by the farmer, and subtracting from this difference the value of all improvements put on the place while it was owned. If the farmer had not resold the farm an estimated present value was taken instead of the sale price.

Number of years since the farmer began his earning life means the total number of years he has spent at all occupations since having been employed without pay on his father's farm or elsewhere.

The operator's average annual rate of accumulation is calculated by taking the total net worth for the year of study less any wealth received from inheritance, gift, marriage, or net increase in land values and dividing the remainder by the number of years that have lapsed since the operator began earning for himself.

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